REMARKS

In the Claims:

Claims 6-13, 15, 18, 19, 24, and 26 remain in this application. Claims 1-5, 14, 17, 20-23, and 25 have been canceled. Claims 6-13, 15, 18, 24, and 26, formerly dependent claims, have been amended into independent form. Claim 19 has been amended to depend from claim 18 rather than claim 17.

The Examiner indicated that claim 24 would be allowable if it were rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 24 has been so amended.

Rejections Under 35 U.S.C. 102(e):

Claims 1, 2, 4, 14, 17, and 20-23 were rejected under 35 U.S.C. 102(e) as being anticipated by Leu, et al. (US 6,605,549) (hereinafter "Leu"). Claims 1-5, 14, 17, 20-23, and 25 were rejected under 35 U.S.C. 102(e) as being anticipated by Pan, et al. (US 6,821,905) (hereinafter "Pan"). Claims 1-5, 14, 17, 20-23, and 25 have been canceled.

Rejections Under 35 U.S.C. 103(a):

Claims 5-13, 15-16, and 18-19 were rejected under 35 U.S.C. 103(a) as being unpatentable over Leu.

Under 35 U.S.C. 103(c), the rejection of claims 5-13, 15-16, and 18-19 should be withdrawn. Subject matter that qualifies as prior art only under 35 U.S.C. 102(e) does not preclude patentability if the reference and the application were, at the time the application was made, owned by the same person or subject to an obligation of assignment to the same person (35 U.S.C. 103(c)). As stated in the Office Action at page 2, Leu qualifies as prior art under 35 U.S.C. 102(e). Leu is assigned to the Intel Corporation. The present patent application is also assigned to the Intel Corporation (as recorded on October 9, 2003 at Reel 014612, Frame 0951), and under the inventors' employment agreement, was subject to an obligation of assignment to the Intel Corporation. Thus, under 35 U.S.C. 103(c), Leu does not preclude patentability of claims 5-13, 15-16, and 18-19; the rejection of claims 5-13, 15-16, and 18-19 over Leu should be withdrawn.

Method claims 6-13, 15-16, and 26 were rejected under 35 U.S.C. 103(a) as being unpatentable over Pan.

The rejections should be withdrawn because one of skill in the art would not be motivated to modify the hydrogen plasma treatment of Pan to result in a treatment that removes methyl groups, as recited in the claims. The fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination (MPEP 2143.01; *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990)). Thus, a proper rejection under 35 U.S.C. 103(a) requires that Pan suggest the desirability of the modifying its disclosed plasma treatment to result in the treatment recited in the claims. Pan makes no such suggestion, so the rejections are improper and should be withdrawn.

The rejected claims recite using hydrogen plasma to remove methyl groups and various process parameters by which one may do so. Such removal of methyl groups may make an interface between a layer exposed to the plasma and another layer stronger than if the methyl groups had not been removed (see Specification, paragraph [0021]).

In contrast, Pan is concerned with using hydrogen plasma to, "block carbon and nitrogen from incorporating (penetrating) into the IMD layer at the hydrogen plasma treated upper surface and near surface areas of the IMD layer during subsequent deposition of one of a carbon based or nitrogen based BARC over the IMD layer." (Pan, col. 5, lines 22-27.) This prevents interference with subsequent photolithographic processes and prevents unwanted etch stop effects. (Pan, col. 5, lines 35-52.) Thus, Pan uses hydrogen plasma for an entirely different purpose than that recited in the claims, and does not suggest the desirability of using hydrogen plasma to remove methyl groups to improve the strength of an interface.

In direct contravention of *In re Mills*, the Examiner has based the rejections over Pan on the statement that one of skill in the art could modify the hydrogen plasma treatment of Pan, and has failed to show that one of skill in the art would be motivated to do so. As shown above, Pan does not suggest the desirability of using hydrogen plasma to remove methyl groups. Even assuming, *arguendo*, that the Examiner's statement that one of skill in the art could modify the hydrogen plasma treatment of Pan without undue experimentation is true, the rejections are not proper prima facie rejections under 35 U.S.C. 103(a) because the cited reference does not provide a motivation for one of skill in the art to make such modifications to result in the process parameters recited in the rejected claims.

Device claims 18 and 19 were rejected under 35 U.S.C. 103(a) as being unpatentable over Pan.

The rejections should be withdrawn because Pan fails to disclose a substrate with a graded region with fewer methyl groups at the top surface of the substrate and more methyl groups further into the substrate, as recited in claims 18 and 19. The Examiner's rejection makes no mention of such a graded region. Similary, Pan fails to disclose such a graded region. Thus, the rejections should be withdrawn.

Pursuant to 37 C.F.R. 1.136(a)(3), applicant(s) hereby request and authorize the U.S. Patent and Trademark Office to (1) treat any concurrent or future reply that requires a petition for extension of time as incorporating a petition for extension of time for the appropriate length of time and (2) charge all required fees, including extension of time fees and fees under 37 C.F.R. 1.16 and 1.17, to Deposit Account No. 02-2666.

Respectfully submitted,

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